IN THE CLAIMS

1. (Original) An ice detector for detecting ice accretion on a surface of a structure subject to icing, said ice detector comprising a sensing element protruding into the airflow and supported relatively to a surface of said structure by a strut upon which it is mounted, characterized in that said sensing element has an evolutionary profile, with a cross-section varying along the longitudinal axis of said sensing element, adapted to enlarge the measurement range of icing conditions, in particular in terms of droplet size spectrum and measurement length.

2. (Original) The ice detector of claim 1 further characterized in that said sensing element has a circular or elliptic cross-section.

3. (Original) The ice detector of claim 1 further characterized in that said sensing element has a polygonal cross-section.

4. (Previously Presented) The ice detector of claim 2 or claim 3 further characterized in that the characteristic dimension of the sensing element cross-section decreases continuously as the distance from said structure subject to icing increases.

5. (Previously Presented) The ice detector of claim 2 further characterized in that said sensing element has a substantially conical shape.

6. (Previously Presented) The ice detector of claim 2 further characterized in that the characteristic dimension of the sensing element cross-section decreases discontinuously as the distance from said structure subject to icing increases.

7. (Previously Presented) The ice detector of claim 2 further characterized in that said sensing element is constituted by successive coaxial cylinders adapted to identify the icing conditions encountered, particularly in terms of droplet size and concentration.

8. (Previously Presented) The ice detector of claim 1 further characterized in that said sensing element is sloped, in the direction of the airflow, from the orthogonal axis of the surface upon which said ice detector is mounted.

9 – 15 (Canceled)

16. (New) The ice detector according to claim 1, wherein said strut comprises a deflector installed in front of said sensing element and adapted to increase the quantity of water droplets that accretes on said sensing element by locally deflecting the streamlines toward said sensing element.

17. (New) The ice detector of claim 16, wherein said deflector is a flat surface on the strut sloped from airflow direction toward said sensing element.

18. (New) The ice detector of claim 16, wherein said deflector is a rounded concave surface on the strut sloped from airflow direction toward said sensing element.

19. (New) The ice detector according to claim 1, wherein said ice detector generates a signal indicating the severity of the icing conditions determined by the speed at which ice accretes on said sensing element through the analysis of the slope of the curve representing the decline of the sensing element oscillation frequency over time.

20. (New) The ice detector according to claim 1, wherein de-icing of said sensing element is maintained until said sensing element is free of ice whereas de-icing of said strut is maintained during the whole duration of said alarm signal.

21. (New) The ice detector of claim 20 comprising a first power supply dedicated specifically to the de-icing of said strut and a second power supply dedicated specifically to the de-icing of said sensing element.

22. (New) The ice detector of claim 20 further comprising a power supply dedicated to the de-icing of both said strut and said sensing element, a switch allowing heating of at least one of said strut and sensing element.